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Fellows' reminiscences

Honoured Guests!

Those who we honour and love do not abandon us when they die. The oeuvre of outstanding scholars, particularly of those awarded the Nobel Prize survives in the international world of science, the importance they achieved at a given time becomes a significant component in the history of science. Their radiant intellect does not come to an end with their death but survives through their students. Their spiritual heritage is not confined by national borders. Thus those who were the fellows of Szent-Györgyi's Institute of Medical Chemistry in Szeged, and later in Budapest, recall to mind both here in Hungary and far from their home country the time they chanced to spend with him striving on the path towards scientific truth carrying out research in his laboratory. The grief over his death thus becomes a moment of gratitude and enthusiasm. It is indeed a great feeling to realize that we were privileged to collaborate with him, and that the richness of his personality radiated and still radiates to us now when he is no longer among us.

We have rather a vague understanding of the biochemical basis of the memory. What we already do know is that the principle of selection manifests itself both in the process of memory fixation and storage and in the recalling of a memory. The human brain — unlike mechanical data storage devices — does not fix all events with equal emphasis in the memory. It distinguishes between important and unimportant ones. The memories I am now recalling to mind after some decades are the personal experiences of fellows which have proved decisive throughout their lives and which, at the same time, throw light upon some characteristic features of Szent-Györgyi's individuality.

Ilona Banga, Szent-Györgyi's first student in Szeged, claims that 50 years ago research into biological oxidation did not mean for Szent-Györgyi merely a field of interest. We had also to face the task of setting up with the help of his personal charm a research team of colleagues with whom he would then be able collaborate in finding proofs for his ever newer and ever-developing theories. In accordance with Szent-Györgyi's method we had to perform some series of experiments over and over again and observe the tiniest details affecting the difference in results obtained from similar experiments. I think it is necessary to emphasize the maximal reproducibility of the experiments to be carried out because a number of insights which the scientist takes for a discovery do not become a scientifically sound and progressive hypothesis because they lack the details revealing the prevailing relationships and a repeated justification of the results. This is why the years spent in Szeged have become for all his fellows the symbol of research at the highest level.

Kálmán Laki: As a medical student, I met Szent-Györgyi in 1931. He gave lectures on biochemistry at the Medical Faculty in Szeged. His presentation was admirable. He revealed to us secrets of physiological processes we had never heard of before. Although I was not obliged to, I sat for the exam in biochemistry. He was satisfied with my exam and suggested that I join his institute. I could not have received a reward greater than that. This was the beginning of my collaboration with Albert Szent-Györgyi at the Szeged Institute of Medical Chemistry. All of us working there had the feeling that we were participating in exciting and fundamental physiological experimentation. Fifty years later, when I was in hospital in Woods Hole, he and his wife used to visit me and talk to me there day after day.

F. Brunó Straub: I am grateful to him for directing me to a field in which I have worked with so much happiness. Had it not been for him, it would never have occured to me that I could deal with biochemistry, without him I would never have learnt what scientific research meant. He could make us feel that we are in need of understanding and a change not only in our research into biochemistry but also in the world around us. He strived for an understanding of the living state not on the basis of the hypotheses of others but rather relying on his own observations. To young scientists I would recommend Szent-Györgyi's method: a man must live to observe reality leaving current theories aside. No one should think that Albert Szent-Györgyi's life was an easy way to triumph. We had to face obstacles before his activities in Szeged, while in Szeged, as well as later, but his great will-power helped him generally to find the right route which was often not the easier way.

Ferenc Guba: One of Szent-Györgyi's virtues as a leader was that he glowed with an affection and enthusiasm towards science providing an atmosphere indispensable for creative work at any place of work. For several months I had the task of studying the behaviour of proteins extracted from mucle from the point of view of viscosimetry. Taking such measurements are not the most diverting of human activities. Still I fanatically carried on my measurements because I was convinced — convinced by Szent-Györgyi — That the revelation of muscle movements assuredly depended on my measurements.

Tamás Erdős (Laboratoire d'Enzymologie, Gif-Sur-Yvette): At that time we worked very hard and we had a wonderful time. I thought I was Fortune's darling: I participated in or witnessed exciting experiments and the "Prof" inserted every little detail into the whole with admirable simplicity. All Szeged was envious of our legendary 5 o'clock tea parties, then the river Tisza was close by and the Prof was glad to lend us his canoe ... after lunch we played volleyball .... And then came the war and everything ceased .... .

Among the inspired colleagues of Szent-Györgyi's in the thirties who attained international renown were Ernő Annau, Béla Gözsi, Mihály Gerendás, László Vargha and István Huszák, who worked enthusiastically with Szent-Györgyi.

László Loránd (Northwestern University, Evanston, Illinois): I entered Szent-Györgyi's institute as a medical student in 1946 with a recommendation from Kálmán Laki. Before the "Prof" gave his positive answer I had had to prove that I could play volleyball. Szent-Györgyi placed natural confidence in all his colleagues because he thought that science is a universal church into which only talented and honest people can enter. When he came over to our lab he would always take care not to disturb us. He would always wait until we finished our experiment. From the start Szent-Györgyi has been a pattern in the practice of science.

Ábel Lajtha (Rockland Research Institute, Center for Neurochemistry, Wards Island, New York): we profited from lunches at the institute not only because they

were a time when we met one another but also because they presented us with the opportunity to exchange our points of view. We would regularly discuss — and mostly it was the "Prof" who started the discussion — topical problems pertaining to scientific, cultural, and political life. After a lunch we would play volleyball in the Trefort Garden. Nowadays it comes as natural but at that time the majority of professors were obsessed with their reputation and accordingly, their behaviour, so that our games appeared almost like some revolutionary ignoring of tradition. With him as the initiator and active participant of every game we could not only forget about the hard times were living in but he could also create a friendly atmosphere for cooperation. He was aware of our weaknesses but he was always ready for a chat. He had the courage to stand by his principles whether they were well-received or not, and he also had the courage to admit his failure. He had the strength to remain faithful to himself and not to strive for high official rank or a place in the organizations of power, but to live happily and devote his life to mankind.

János Gergely (Boston Biomedical Research Institute): It is his enthusiasm, his affection for science and his devotion to scientific research of which most of us can give only a pale reflection, that I recall in the first place. And I shall always remember his sparkling thoughts, his accurate observations, his fervour for palpable facts which is often lost in the present world of well-equipped laboratories. One of his marked personal features was his love that shone for everybody who chanced to know him. His close collaborators still feel this love and it means much to them after so many years.

Endre Bíró (Institute for Biochemistry, Eötvös Loránd University, Budapest): Everybody who worked with him, even the freshmen, were convinced that what we are dealing with is the most important thing in the world. How did he manage to make us feel like that? What was the secret of his personal charm? He never ever delivered a speech on the importance of the scientific problems we were tackling, nor did he organize meetings on the international state-of-the-art concerning our field of research. We were young and he was the Nobel Prize winner, the major specialist. Is that an explanation? Certainly not. How did he, then, make us realize the importance of what we were working on? He made us realize it because he believed deeply in his work. As naturally as people breathe in air, he believed in the order of importance of facts. How did he rule his Institute? I might say: nohow. He did not need to: we all followed him in our own way as much as we could. Those unaffected by his magic were dismissed. Without any anger, but irrevocably. Like a conductor who realizes that someone in his orchestra lacks a sense of rhythm.

And in the end, let me tell you some of my personal experiences as a fellow who joined his Institute rather lately. — Debrecen, November 1937. An unusual lesson of chemistry at the Fazekas Mihály High School of Sciences. There are no questions that day because our teacher of chemistry devotes the whole lesson to a professor in Szeged who has been awarded the Nobel Prize. Who has acquired fame not only for the city of Szeged and Hungary. As sixteen-year-old pupils and with a scanty knowledge of organic chemistry we may not have understood everything about Szent-Györgyi's discoveries. But Mr. Nádasdi the teacher's enthusiasm affected even those pupils who disliked chemistry. I have to this day preserved the enthusiasm towards science that I came to feel in connection with the news about Szent-Györgyi's Nobel prize. — Kolozsvár, Summer of 1942. From morning to evening I sit in the auditorium at the Congress of the Society of Hungarian Physiology. I am fully caught up with the air of scientific debates and my first encounter with the duel of arguments and contrarguments. I am enthusiastic over

the combat between doubt and certainly of finding scientific truth. I am thrilled by the fact that here it is not dignity or official rank that appears as the decisive factor. Szent-Györgyi is the greatest polemist and I listen to him with a passionate heart and mind. Because he is not elevated and does not strike attitudes, he does not argue with the weight of his Nobel Prize, but does so with clearcut argumentation based on exceptionally precise observations. With the simplicity of a scientist who is capable of seeing the connection between the details and the whole. With witty remarks pertaining to essential questions. With virtues I have since then realized to be inseparable from scientific progress. — Debrecen, February 1945. We began our second semester lectures in the Institute for Physiology in the absence of our professor and Head of Department. Suddenly Szent-Györgyi arrived one day. He was to stay only for a couple of days because, he told us, he would meet somebody here. He moved into the professor's room on the second floor. We were, of course, eager to help him, but he would light the fire in the stove himself. My mother fed him. He praised one of her dishes very much. My mother was very proud of this all her life. The guest he had been expecting arrived on the third day. I was close to the door and I opened it since I was the accredited head of department. Upon seeing my white gown, the man in a black coat with a fur collar put out his hand, saying: "I am Mátyás Rákosi". Szent-Györgyi came running from his room at the end of the corridor and took his guest by the arm and led him away for the meeting. About one-and-a-half hours later they were just passing the door of my office when I stepped out and saw that they were no longer holding each other by the arm. I did not think then that it could be a sign of friendship or a sign of lack of friendship. But we were soon to learn from the daily press that in the West Szent-Györgyi was considered a friend of the communists, while here, at home there were many who thought he was a friend of the Western world. — Budapest, autumn of 1946. At this time I was already working with Kálmán Laki at the Szent-Györgyi Institute. Among us there were people with different diplomas as chemical engineers, chemists and physicians, but it was apparent from Szent-Györgyi's example that a good biochemist should have a sound background both in biology and in chemistry. And indispensable to both is a good knowledge of mathematics. Szent-Györgyi asked professor Pál Gombás and his colleagues to help us in refreshing our mathematical knowledge with a view to developments in quantum chemistry. One afternoon a week we spent with him in the library of the Institute listening to these lectures. At first we did not have many difficulties in understanding the subject matter. But soon we came to a point where even the most experienced chemical engineers showed ultimate signs of miscomprehension (the chemists and physicians had already given up). The two small blackboards that could be changed by pulling down and pushing up would be rapidly filled with differential and integral equations. In the meantime we would have our usual tea and biscuits. And then the lecture was over. Szent-Györgyi stood up and broke the silence thanking the lecturer in the following way: "Thank you very much for this interesting and exhausting lecture. To tell the truth, the only thing I could understand were the three biscuits I ate in the meantime". The tension of our ignorance dissolved in a burst of laughter, which included the lecturer as well so that he could not have been offended. At this time I realized that Szent-Györgyi was a scientist who not only recognized the boundaries of his knowledge but did not conceal them from his colleagues and others. And it concerned topics other than abstract mathematics. When people interested in the research at his Institute asked him a question about blood coagulation, he would answer briefly: "Ask Kálmán Laki".

Honoured Guests!

A mosaic is a picture put together from tiny coloured pebbles or pieces of glass. The colourful pictures in our memory, the fragments of ever-lasting experience recalled by his fellows make up a very rich and unique mosaic: the spiritual portrait of the ideal scientist. The portrait of a true humanist and a scientist who strived with all his might for scientific cognition. In this portrait we can see — to use Attila József's words — "a European amongst the white men" who could remain European among the American whites. The actual message of Szent-Györgyi's rich intellectual heritage for researchers in biochemistry in this country is that one can break through to the international forefront of science and maintain this position. But Szent-Györgyi has a message not only for biochemists. He has something to say to the whole of mankind: "A world transformed by science can be run only by the spirit, which created science: the search for truth and putting two and two together with a cool head, without fear, greed and lust for domination." (A little catechism — Albert Szent-Györgyi Bulletin of the Atomic Scientists, April, 1975).

The history of mankind may bring further stormy winds in the future that will disturb the activity of scientific workers. But if we set out for work in the mornings in the same way as Szent-Györgyi left for his laboratory even at the age of eighty, then we will know that it is the creation of some new knowledge, some new beauty, that is worth living for. We have understood and accepted his spiritual heritage.